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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,587	01.23/2002	Sergey Fridman		4136
31009 7	7590 07-29/2003			
VLADIMIR FRIDMAN 905 FILMORE ST. MONTEREY, CA 93940			EXAMINER FINEMAN, LEE A	
			2872	
			DATE MAILED: 07/29/2003	3

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)				
Office Action Summary		09/683,587	FRIDMAN ET AL.				
		Examiner	Art Unit				
		Lee Fineman	2872				
	The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply						
THE N - Exten after S - If the - If NO - Failur - Any r	DRTENED STATUTORY PERIOD FOR R MAILING DATE OF THIS COMMUNICATI sions of time may be available under the provisions of 37 C SIX (6) MONTHS from the mailing date of this communicati period for reply specified above is less than thirty (30) days period for reply is specified above, the maximum statutory e to reply within the set or extended period for reply will, by sply received by the Office later than three months after the d patent term adjustment. See 37 CFR 1.704(b).	ON. FR 1.136(a). In no event, however, may on. , a reply within the statutory minimum of the period will apply and will expire SIX (6) Mean that the cause the application to become	a reply be timely filed hirty (30) days will be considered timely. ONTHS from the mailing date of this communication. ABANDONED (35 U.S.C. § 133).				
1)⊠	Responsive to communication(s) filed or	n <u>31 October 2002</u> .					
2a)⊠	7	This action is non-final.					
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213. Disposition of Claims							
=	Claim(s) 26-49 is/are pending in the app	lication.					
	4a) Of the above claim(s) is/are wi						
	Claim(s) is/are allowed.						
, —	Claim(s) <u>26-49</u> is/are rejected.						
·	Claim(s) is/are objected to.						
	Claim(s) are subject to restriction	and/or election requirement.					
Application Papers							
9) The specification is objected to by the Examiner.							
10)⊠ The drawing(s) filed on 1/23/02 and 31 October 2002 is/are: a)□ accepted or b)⊠ objected to by the Examiner.							
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1 85(a).							
11)⊠ The proposed drawing correction filed on <u>31 October 2002</u> is: a) approved b) disapproved by the Examiner.							
If approved, corrected drawings are required in reply to this Office action.							
12) The oath or declaration is objected to by the Examiner.							
Priority	under 35 U.S.C. §§ 119 and 120						
13)	Acknowledgment is made of a claim for	foreign priority under 35 U.S.	C. § 119(a)-(d) or (f).				
	☐ All b)☐ Some * c)☐ None of:						
1. Certified copies of the priority documents have been received.							
	2. Certified copies of the priority doc	uments have been received i	n Application No				
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 							
14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).							
	a) The translation of the foreign languate Acknowledgment is made of a claim for definition of the claim for de	ige provisional application ha	s been received.				
Attachment(s)							
1) Noti	ce of References Cited (PTO-892) ce of Draftsperson's Patent Drawing Review (PTO-treation Disclosure Statement(s) (PTO-1449) Paper	948) 5) 🔲 Notic	iew Summary (PTO-413) Paper No(s) e of Informal Patent Application (PTO-152)				

DETAILED ACTION

This Office Action is in response to an amendment filed 31 October 2002 in paper number 6 in which claims 1-25 were cancelled and claims 26-49 were added. Claims 26-49 are pending.

1. An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. While an inventor may prosecute the application, lack of skill in this field usually acts as a liability in affording the maximum protection for the invention disclosed. Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled preparation and prosecution. The Office cannot aid in selecting an attorney or agent.

Applicant is advised of the availability of the publication "Attorneys and Agents Registered to Practice Before the U.S. Patent and Trademark Office." This publication is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the lens array as with at least one Fresnel lens or diffraction lens; a display surface that is not flat; and an autostereoscopic image capture and reproduction system with information transmitted by means of electromagnetic waves propagating in cables, waveguides or as airwaves must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The newly added drawing sheet for figure 13, filed on 31 October has been disapproved because it introduces new matter. 37 CFR 1.121(f) states that no amendment may introduce new matter into the disclosure of an application. The original disclosure does not support the showing of the autostereoscopic display apparatus having the spatial light modulator in front of lens array.

Specification

4. The abstract of the disclosure is objected to because of use of legal phraseology, such as "said." Correction is required. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The substitute specification filed 31 October 2002 has not been entered because of the entry of new matter and no marked-up copy. The new matter is directed to the autostereoscopic display apparatus having the spatial light modulator in front of lens array.

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6. The applicant has also submitted the changes by amendment. The amendment filed 31 October 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material that is not supported by the original disclosure is as follows: Added paragraph [0079] and new figure 13 describe the autostereoscopic display apparatus having the spatial light modulator in front of lens array. Applicant is required to cancel the new matter in the reply to this Office Action.

7. The specification is objected to for failing to support the claimed limitations below.

While the claims are considered part of the original disclosure, a written description of the claimed details must be described in the specification. Accordingly, the specification should be amended to include the limitation disclosed in claims 43-47 and 49 as detailed below.

Claim 43 states the limitation "wherein said array of light projecting devices uses color multiplexing to display an autostereoscopic image" which is not described in the specification or drawings.

Claims 44-46 state the limitations "an autostereoscopic image capture and reproduction system...comprising a three-dimensional capture apparatus...an autostereoscopic display apparatus...and a transmission system," "wherein said information is stored," and "wherein said information is transmitted by means of electromagnetic waves propagating in cables, waveguides or as airwaves" which are not described in the specification or drawings.

Claims 47 and 49 state the limitation "wherein the outer surface of the display is not flat and may enclose some volume in space" which is not described in the specification or drawings.

Claim Objections

8. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 1-24 have been renumbered 26-49.

9. Claims 26-49 are objected to because of the following informalities:

Regarding claim 26, the limitation "the viewer" lacks antecedent basis.

Regarding claim 47, the limitation "the outer surface" lacks antecedent basis.

The dependent claims inherit the deficiencies of the claims from which they depend.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 31, (33-40)/31, (47-49)/31, 32, (35-40)/32 and (47-49)/32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to

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reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 31, (33-40)/31 and (47-49)/31, claim 31 has the limitation "said lens array is placed, as viewed from the viewer's position, behind the spatial light modulator" which is not described in the specification or drawings. This limitation constitutes new matter. The dependent claims inherit the deficiencies of the claims from which they depend.

Regarding claims 32, (35-40)/32 and (47-49)/32, claim 32 has the limitation "said spatial light modulator is placed in front of the lens array" which is not described in the specification or drawings. This limitation constitutes new matter. The dependent claims inherit the deficiencies of the claims from which they depend.

- 12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
- 13. Claims 26-49 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited.

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Regarding claims 26-49, claim 26 states "as defined in the specification" which is indefinite. It is unclear what definitions are specifically needed for the claim. Any limitations that are needed to claim the invention should be detailed within the body of the claim. See 37 CFR 1.75 and MPEP § 608.01(i)-(p). The dependent claims inherit the deficiencies of the claims from which they depend.

Regarding claims 26-49, claim 26 states "an autostereoscopic image displaying method" and claims 27-32 state "an autostereoscopic display method and apparatus" but do not include method steps, only structure. These claims are incomplete. The dependent claims inherit the deficiencies of the claims from which they depend.

Regarding claims 26-49, claim 26 states the limitation "said light projecting devices... are placed sufficiently close to each other so that the viewer would not notice granularity," and claims 28-32 state the limitation "do not significantly diffuse light." Terms like "sufficiently close," "would not notice" or "significantly" are vague and ambiguous and render the scope of the claim(s) unascertainable. The dependent claims inherit the deficiencies of the claims from which they depend.

Regarding claims 28, 30 and 32, the phrase "preferably but not necessarily" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). The dependent claims inherit the deficiencies of the claims from which they depend.

Regarding claim 31, the phrase "may be smaller or larger" renders the claim indefinite because it is unclear whether the limitation(s) are part of the claimed invention. The dependent claims inherit the deficiencies of the claims from which they depend.

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Regarding claims 43, 44, 47 and 49, the phrases "can be" or "could be" or "may enclose" renders the claim indefinite because it is unclear whether the limitation(s) are part of the claimed invention. The dependent claims inherit the deficiencies of the claims from which they depend.

Regarding claim 48, the limitation "an autostereoscopic display apparatus that is composed of several autostereoscopic displays according to any one of the claims 26 to 32" is unclear as claims 26-32 are drawn to a method.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claim 26-30, 33/27, 33/29, 38/29-30, 40/29-30, 42, 43, 44/26-30, 45/26-30 and 46/26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Torgeson, U.S. Patent No. 6,157,402.

Regarding claim 26, Torgeson discloses an autostereoscopic image display (fig. 3) apparatus for displaying a subject in still or motion picture comprising an array of light projecting devices (fig. 5) with a predetermined directional distribution in intensity and color (abstract) and the whole array reproduces light distribution from a three-dimensional scene, said light projecting devices are facing a viewer (fig. 3 and column 4, lines 62-64) and are placed sufficiently close to each other that the viewer would not notice granularity when viewing the

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image from a distance larger than a certain minimum distance (L). The preamble fails to structurally limit the body of claim. Torgeson meets all of the structural limitations required by the claim in support thereof. As such, Torgeson must support reproducing all four physiological depth cues in the same way as the structure of the claim.

Regarding claims 27, 33/27 and 42/27, Torgeson further discloses wherein said array of light projecting devices comprises a lens array comprising a plurality of elemental converging lenses (315) wherein light that originates from focal points of individual lens forms an autostereoscopic image (fig. 6); an image projector (310-314) for projecting light in a form of a non-diffuse light (fig. 3), which is a liquid crystal display projector, said projector placed behind the lens array (315) as viewed from the viewer's position and projecting light (309) onto the lens array and wherein said projector is emanating light rays that have a predetermined direction, intensity and color at every point where they hit the lens array (column 4, lines 48-50), said projector(s) displays a plurality of elemental images each of which is a projection of a three-dimensional scenery that is displayed by the whole apparatus (column 4, lines 1-45).

Regarding claims 28 and 42/28, Torgeson further discloses wherein said array of light projecting devices comprises an aperture screen (fig. 5, 535) made of opaque material with plurality of apertures, wherein said apertures are transparent and do not significantly diffuse light, in said aperture screen light that originates in individual apertures and that is emitted from apertures at a range of directions forms an autostereoscopic image (column 5, lines 50-55) and said lens array composed of plurality of elemental converging lenses (column 4, lines 59-60) placed behind the aperture screen as viewed from the viewer's position, wherein points where the light is focused by individual lenses coincide with apertures of the aperture screen (fig. 5).

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Regarding claims 29, 30, 33/29, 38/29-30 and 40/29-30, Torgeson further discloses wherein said image projector comprises a spatial light modulator (312), which is a liquid crystal display/projector display, placed behind the lens array as viewed from the viewer's position (fig. 3), said spatial light modulator made out of material that does not diffuse light significantly, wherein said spatial light modulator displays a plurality of elemental images each of which is a projection of a three-dimensional scenery that is displayed by the whole apparatus (column 4, lines 1-45); and a backlight (310), which is a point light source, in a form of a non-diffuse light source placed behind the spatial light modulator as viewed from the viewer's position (fig. 3), said backlight projecting light onto the spatial light modulator, wherein said backlight is emanating light rays that have a predetermined direction, intensity and color at every point where they hit the spatial light modulator (column 4, lines 53-56).

Regarding claims 34/27, 34/29, 35 and 36, Torgeson further discloses wherein said lens array comprises a plurality of elemental lenses wherein at least one element of the lens array is behaving as a diverging lens (figs. 10A and 10B, 1026; column 7, lines 35-53) and wherein at least one element of the lens array is a Fresnel lens (in so far as lens 1022 can be considered part of the lens array with 1025 and 1026, figs. 10A and 10B; column 4, lines 55-56), which is a diffraction lens.

Regarding claims 43, 44/26-30, 45/26-30 and 46/26-30, Torgeson further discloses wherein said array of light projecting devices uses color multiplexing to display an autostereoscopic image (column 4, lines 20-23), which is a three-dimensional image capture device (television or computer monitor) for capturing information about a three-dimensional scene including directional distribution of light color and intensity at all points in some window

in space for all directions within a certain field of view and a transmission system for transmitting said information from said three-dimensional image capture apparatus to said autostereoscopic display (inherent in a television or computer monitor); wherein said information is stored in some form during a transmission process for the purpose of recreating the three-dimensional scene at some later point in time by said autostereoscopic display apparatus (column 4, lines 1-5); and said information is transmitted by means of electromagnetic waves (light waves from the television or monitor) propagating as airwaves (visible light waves propagate through the air).

Claim Rejections - 35 USC § 103

- 16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 17. Claims 31, 32, 33/31, 34/31, 37, 38/31-32, 39, 40/31-32, 41, 44/31-32, 45/31-32, 46/31-32, are rejected under 35 U.S.C. 103(a) as being unpatentable over Torgeson in view of Ezra et al., U.S. Patent No. 5,392,140.

Torgeson discloses the claimed invention except wherein said lens array is placed, as viewed from the viewer's position, behind the spatial light modulator; wherein said spatial light modulator is either in front or behind the aperture screen as viewed from the viewer's position; wherein said backlight is a collimated light source; and wherein said array of light projecting

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devices is an array of liquid crystal projectors. Ezra et al. teach various equivalent autostereoscopic systems in figs. 1-12 with an array of light projecting devices including wherein a lens array (12) is placed, as viewed from the viewer's position, in front of (fig. 11) or behind (fig. 1) the spatial light modulator (13); wherein said spatial light modulator is either in front (fig. 9) or behind (fig. 12) the aperture screen (52) as viewed from the viewer's position; wherein said backlight is a point source (fig. 5), an array of point sources (fig. 6), or a collimated light source (fig. 1); and wherein said array of light projecting devices is a single liquid crystal display projector (fig. 5) or an array of liquid crystal display projectors (fig. 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to reposition the lens array or spatial light modulator or change the backlight source in the system of Torgeson as taught by Ezra et al. to provide various specific systems which improve the accuracy and appearance of the three-dimensional image and can afford a larger image (column 2, lines 17-26, Ezra).

Regarding claim 48, Torgeson discloses the claimed invention except for the duplication of the autostereoscopic display. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the apparatus be composed of several autostereoscopic displays, since it has been held that a mere duplication of working parts of a device involves only routine skill in the art. One would have been motivated to duplicate the autostereoscopic displays for the purpose of providing a larger image for viewing. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

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Regarding claims 47 and 49, Torgeson discloses the claimed invention but is silent about an outer surface of the display being not flat and enclosing some volume in space. Official Notice is taken that a display with an outer covering that has a surface that is not flat and encloses some volume in space is well known in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add an outer covering with a surface that is not flat and encloses some volume in space to the display of Torgeson to provide a protective shell for the optical parts.

Response to Arguments

19. Applicant's arguments with respect to claims 26-49 have been considered but are moot in view of the new ground(s) of rejection.

Additionally, for the future benefit of the applicant, the examiner would like point out that: 1) A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

2) A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations

are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

3) The transitional phrases "comprising", "consisting essentially of" and "consisting of" define the scope of a claim with respect to what unrecited additional components or steps, if any, are excluded from the scope of the claim.

The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.).

The transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. In re Gray, 53 F.2d 520, 11 USPQ 255 (CCPA 1931); Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948) ("consisting of" defined as "closing the claim to the inclusion of materials other than those recited except for impurities ordinarily associated therewith."). A claim which depends from a claim which "consists of" the recited elements or steps cannot add an element or step. When the phrase "consists of" appears in a clause of the body of a claim, rather than immediately following the preamble, it limits only the element set forth in that clause; other elements are not excluded from the claim as a whole. Mannesmann Demag Corp. v. Engineered Metal Products Co., 793 F.2d 1279, 230 USPQ 45 (Fed. Cir. 1986).

The transitional phrase "consisting essentially of' limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel

characteristic(s)" of the claimed invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976).

20. It is noted by the Examiner that the drawing and specification objections made in the previous Office Action have been withdrawn due to amendment by the Applicant.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (703) 305-5414. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (703) 305-0024. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

LAF

July 17, 2003

MARK A. ROBINSON PRIMARY EXAMINER